Flora of Telangana

The 29th State of India

Volume 2

Author
T. Pullaiah
Department of Botany
Sri Krishnadevaraya University
Anantapur – 515 003
Andhra Pradesh
India

2015
Regency Publications
A Division of
Astral International Pvt. Ltd.
New Delhi – 110 002

Fl. & Fr.: February – August.

Way to Farahabad (MBNR), *SSR* 15534; Pullayapally (MBNR), *MVS & DV* 38646; Appapur (MBNR), *VSL, DV & BR* 39278.

ASTERACEAE (*nom. alter.* COMPOSITAE)

1. Flowes all ligulate; sap milky; pappus fine, capillary or silky ..... **LACTUCEAE**
   2. Capitula solitary on leafless scape; scapigerous herbs ..... **Taraxacum**
   2. Capitula several on branching leafy stem; non scapigerous:
      3. Achenes distinctly beaked; beak slender ..... **Lactuca**
      3. Achenes not beaked:
         4. Achenes narrow, truncate at both ends ..... **Launaea**
         4. Achenes compressed ..... **Sonchus**

1. Flowers all tubular or the outer only ligulate; sap watery; pappus other than silky:
   5. Involucral bracts uniseriate ..... **SENECIONEAE**
      6. Plants succulent ..... **Kleinia**
      6. Plants not succulent:
         7. Heads homogamous ..... **Emilia**
         7. Heads heterogamous ..... **Senecio**
   5. Involucral bracts more than one seriate:
      8. Heads homogamous, not rayed; pappus strictly present:
         9. Leaves opposite, rarely upper ones alternate ..... **EUPATORIEAE**
            10. Pappus of very short scales:
               11. Involucral bracts narrow; achenes 5-angled; pappus scales paleaceous ..... **Ageratum**
               11. Involucral bracts broad; achenes 3-ribbed; pappus scales clavate ..... **Adenostemma**
            10. Pappus of long hairs ..... **Chromolaena**
         9. Leaves alternate:
            12. Anther cells tailed or auricled or mucronate; style branches elongated ..... **VERNONIEAE**
               13. Herbs rhizomatous; heads subtended by leafy bracts ..... **Elephantopus**
               13. Herbs or shrubs, not rhizomatous; heads not subtended by leafy bracts ..... **Vernonia**
            12. Anther cells cleft at base or subentire; style branches not elongated:

14. Style branches thickened towards base ..... CYNAREAE

15. Involucral bracts spinescent:

16. Heads compound; leaves spinescent; deeply lobed ..... Echinops

16. Heads simple; leaves not spinscent; dentate or lyrately lobed ..... Oligochaeta

15. Involucral bracts aristate-acuminate or acuminate:

17. Heads 4-5-flowered, in compound corymbs ..... Goniocaulon

17. Heads many-flowered, usually solitary or few ..... Tricholepis

14. Style branches not thickened towards base ..... MUTISIEAE : Dicoma

8. Heads heterogamous, rayed or not (except **Caesulia** and **Lagascea**); pappus present or absent:

18. Receptacle epaleaceous:

19. Leaves opposite ..... HELENIEAE : Flaveria

19. Leaves usually alternate:

20. Anthers base obtuse ..... ASTEREAE

21. Pappus of many slender hairs, setaceous:

22. Female florets ligulate (atleast marginal ones), ligule exceeds the pappus ..... Erigeron

22. Female florets not ligulate, if present do not exceed the pappus ..... Conyza

21. Pappus absent or a lacineate cup:

23. Receptacle convex; achene glandular ..... Grangea

23. Receptacle cup like; achenes glabrous ..... Cyathocline

20. Anther base sagittate or tailed ..... INULEAE

24. Heads aggregated into dense globose or ovoid clusters:

25. Herbs aromatic; stems winged or atleast leaves decurrent; florets pink ..... Sphaeranthus

25. Herbs not aromatic; stems not winged; florets white ..... Blepharispermum

24. Heads not aggregated into clusters:

26. Stems winged (except ***Laggera aurita***):

27. Plants diffuse or prostrate herbs; leaves linear-oblong, pappus absent; bisexual florets minute and sterile ..... Epaltes

27. Plants erect herbs; leaves elliptic-oblanceolate; pappus present; bisexual florets fertile ..... **Laggera**

26. Stems not winged:

28. Plants marshy herbs; heads solitary, white ..... **Caesulia**

28. Plants other than marshy; heads in racemes:

29. Heads rayed:

30. Pappus biseriate, outer row of scales forming cup, inner of setaceous free hairs ..... **Pulicaria**

30. Pappus uniseriate, setaceous hairs free ..... **Pentanema**

29. Heads not rayed:

31. Involucral bracts broad, scarious ..... **Gnaphalium**

31. Involucral bracts other than above:

32. Stem woody; involucral bracts broad, rigid ..... **Pluchea**

32. Stem herbaceous; involucral bracts narrow, slender ..... **Blumea**

18. Receptacle paleaceous:

33. Leaves opposite, all cauline:

34. Inner involucral bracts partly or completely enclose the achenes of ray florets; pappus or ray and disc florets absent; bisexual florets sterile, ray florets fertile ..... **Acanthospermum**

34. Inner involucral bracts do not enclose the achenes of ray florets, almost free from achenes; pappus of either ray and disc florets present or rarely absent; bisexual florets fertile, ray florets usually sterile:

35. Heads one-flowered, clustered together or aggregated in compound fashion, subtended by leafy bracts; ligules absent ..... **Lagascea**

35. Heads separate, not aggregated in compound fashion, not subtended by leafy bracts; ligules present:

36. Leaves and phyllaries with oil glands ..... **Tagetes**

36. Leaves and phyllaries lacking oil glands:
    37. Pappus of awns:
        38. Achenes dimorphic, of ray winged, of bisexual florets not winged; involucral bracts rigid; pappus glabrous ..... **Synedrella**
        38. Achenes monomorphic, not winged; involucral bracts soft; pappus awns otherwise:
            39. Pappus awns plumose; achenes densely silky ..... **Tridax**
            39. Pappus awns retrorsely barbellate; achenes hispid or glabrous ..... **Bidens**
    37. Pappus of scales, bristles, or absent:
        40. Receptacle conical:
            41. Style branches truncate; heads rather large; achenes usually ciliate along margins ..... **Spilanthes**
            41. Style branches acute; heads small; achenes not ciliate along margins:
                42. Pappus present ..... **Galinsoga**
                42. Pappus absent ..... **Guizotia**
        40. Receptacle flat, or slightly convex:
            43. Bisexual florets completely enclosed by palea; achenes curved and narrowly beaked at apex ..... **Sclerocarpus**
            43. Bisexual florets free from palea; achenes straight, truncate to obtuse at apex:
                44. Stems erect; heads on conspicuous strong penduncles; ligules yellow:
                    45. Heads less than 5 cm in diam ..... **Wedelia**
                    45. Heads more than 5 cm in diam ..... **Helianthus**

44. Stems often decumbent; head subsessile to sessile or with weak peduncle, white:

46. Bisexual florets yellow and red ..... **Gaillardia**

46. Bisexual florets white:

47. Palea broad, dentate at apex ..... **Blainvillea**

47. Palea narrow, acute to gland tipped ..... **Eclipta**

33. Leaves alternate, radical and cauline or cauline only:

48. Prostrate, decumbent or scapigerous low herbs:

49. Pappus of awns ..... **Glossocardia**

49. Pappus absent ..... **Chrysanthellun**

48. Erect herbs to sub-shrubs:

50. Heads unisexual; female heads eligulate, 2-flowered, covered by hooked spines; anemophilous ..... **Xanthium**

50. Heads bisexual; female florets ligulate; entomophilous ..... **Parthenium**

ACANTHOSPERMUM Shrank

Acanthospermum hispidum DC., Prodr. 5:522. 1836; Gamble, Fl. Madras 2: 704.1921; Chowdhery in Hajra & *al.*, Fl. India 12 : 361. 1995.

Erect herb, to 40 cm high, stem striated, sparsely pubescent below, white serecious in younger parts; branches in dichotomies. Leaves opposite, simple, sessile, one veined from base and veins raised on lower surface; sparsely pubescent on both surfaces, obovate, spathulate or elliptic, 3-8 x 1-3 cm, base attenuate, margin entire to dentate, ciliate, apex obtuse to apiculate. Heads solitary, axillary in forks, yellow, 1 cm, heterogamous, rayed, subsessile. Involucral bracts biseriate, not exceed the florets at maturity; outer 5, elliptic to oblong-elliptic, 4-6 mm, basally united, 3-veined, pubescent on dorsal side, margin ciliate with long multicellular hairs, acute to sub-acute, rarely bidentate; inner ones connate, 4-6 mm, enveloping the ovary of ray florets, compressed, prickly, apically 2-awned, awns 3-5 mm. Receptacle slightly convex, 2-3 mm. Ray florets 8, tube minute, glabrous, ligule elliptic, 1.5 mm, 3-veined, glandular and hairy on dorsal side, 3-lobed, lobes ovate to oblong, 0.3 mm, obtuse; style 1.5 mm, branches 0.7 mm, often recurved, flat, obtuse, papillate. Bisexual florets 7, tube 1 mm, cylindrical, pubescent with multicellular hairs; limb 1 mm, 5-lobed, lobes ovate-elliptic, 0.8 – 1 mm, pubescent with hairs and glands, rarely midveined, subacute; stamens 5, exserted to the level of lobes, anthers oblong, 1 mm, hood ovate, incurved, base sagittate, auricles obtuse; style not exserted, 2 mm, branches broad, obtuse, papillate; pappus

BLUMEA DC *nom. cons*

1. Leaf margins toothed; anthers abortive:
   2. Plants prostrate; bisexual florets multicellular hairy except on tube ..... **B. oxyodonta**
   2. Plants erect; bisexual florets multicellular hairy on lobes and tubes ..... **B. eriantha**
1. Leaf margins otherwise; anthers fertile:
   3. Heads solitary or few:
      4. Uppermost leaves opposite or sub-opposite ..... **B. bifoliata**
      4. Uppermost leaves alternate ..... **B. obiliqua**
   3. Heads variously paniculate or clustered:
      5. Receptacle pubescent or pilose ..... **B. laciniata**
      5. Receptacle glabrous or fimbriate:
         6. Plant parts densely silky sericeous:
            7. Bisexual florets pubescent with colleters; achenes ribbed ..... **B. hieracifolia**
            7. Bisexual florets pubescent with multicellular hairs; achenes striated ..... **B. lacera**
         6. Plant parts variously pubescent or glabrous:
            8. Bisexual florets colourless with pink tinge ..... **B. mollis**
            8. Bisexual florets yellow:
               9. Plant parts with glandular indumentum ..... **B. membracacea**
               9. Plant parts eglandular ..... **B. virens**

Blumea bifoliata (L.) DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook.f., Fl. Brit. India 3: 261. 1881; Gamble, Fl. Madras 2: 686. 1921; Kumar in Hajra & *al.*, Fl. India 13: 120. 1995. *Conyza bifoliata* L., Sp. Pl. 862. 1753.

Erect or ascending herb, 10-40 cm high, stems simple or branched from base, villous with multicellular hairs and stipitate glands. Leaves simple, lower alternate, uppermost opposite or sub-opposite, sessile, one-veined from base, villous and glandular on both surfaces, margin serrate, apex acute or apiculate. Heads solitary, axillary and terminal, yellow, 6-7 mm, heterogamous, not rayed. Involucral bracts 5, biseriate, equal in length to the florets. Female florets about 140, tubular, 3 mm, filiform, glabrous, 3-lobed; style 5 mm, exceeding the lobes, branches linear, obtuse. Bisexual florets 10-13, 4-5 mm, glabrous below, 5-lobed, lobes ovate-triangular, pubescent with unicellular hairs and colleters on dorsal side, apex acute; stamens 5, anthers 2 mm, hood rounded at apex, base sagittately tailed; style 5 mm, slightly exserted, branches linear, obtuse. Pappus 4 mm, white, uniseriate, setaceous hairs, not exceeding the florets. Achene 1 mm, oblong, hairy.

Wet places of the forests in Nizamabad, Hyderabad, Mahabubnagar and Nalgonda districts.

Fl. & Fr.: November – March.

Salura (NZB), *BR* 7278; Erloo to Mahabubnagar (MBNR), *SRS* 104516 (BSID); Rachakonda (NLG), *BVRS* 392 (NU).

Blumea eriantha DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook.f., Fl. Brit. India 3: 266. 1881; Gamble, Fl. Madras 2: 686. 1921; Kumar in Hajra & *al.*, Fl. India 13: 122. 1995 .

Erect herb, strongly aromatic, 30-100 cm high, stem brown, striated, puberulous to densely silky in younger parts, globose woolly buds clustered at the base and on roots. Leaves alternate, simple, sessile, one veined, raised on both surfaces, densely silky, silvery and shiny in younger ones, obovate, base attenuate, margin spinulose dentate, apex acute or obtusely apiculate. Heads terminal or axillary, cymosely paniculate or solitary, yellow, 6 mm, heterogamous, not rayed. Involucral bracts 50, lanceolate, pubescent with multicellular hairs and glands on dorsal side, acute to sub-acuminate. Female florets around 150, 3.5 mm, tubular, filiform, 3-lobed, pubescent on lobes, occasionally hairy at base; style not exserted, branches linear, obtuse. Bisexual florets around 60, 4 mm, pubescent with multicellular hairs, often with colleters on lobes and at base, 5-lobed, lobes ovate, sub-acute; stamens 5, anthers shrinked and abortive, 1.5 mm, hood oblong, narrow, base sagittately tailed; style 2-3 mm, branches minutely papillate, obtuse. Pappus uniseriate, setaceous with hairs, equal to the florets. Achene oblong to elliptic-oblong, 0.5 mm, pubescent.

Rare clumps in the forests in Adilabad, Nizamabad, Ranga Reddi and Warangal districts.

Fl. & Fr.: February – May.

Sathermott (ADB), *TP* & *PVP* 4107; Utnoor (ADB), *GO* & *PVP* 4604; Gandhari RF (NZB), *TP* & *BR* 6338; Sirikonda RF (NZB), *BR* 9697; Dharmapur (RR), *MSM* & *KH* 10547; Pakhal (WGL), *ANH* 15938 (MH).

Blumea hieracifolia (D. Don) DC. in Wight, Contrib. Bot. Ind. 15. 1834. var. **macrostachya** (DC.) Hook.f., Fl. Brit. India 3: 263. 1881; Gamble, Fl. Madras 2: 687. 1921; Kumar in Hajra & *al.*, Fl. India 13: 126. 1995. *B. macrostachya* DC., Prodr. 5: 442. 1836.

Simple or sparingly branched, usually scapigerous herbs. Basal leaves in rosette, oblanceolate or spathulate, regularly shortly dentate, stem leaves usually smaller and more oblong, often very white-woolly. Heads in close clusters, terminal to the stem or its branches. Achenes ribbed, pubescent at first, then glabrous.

Rare along streams in Ranga Reddi district.

Fl. & Fr.: Aughust – January.

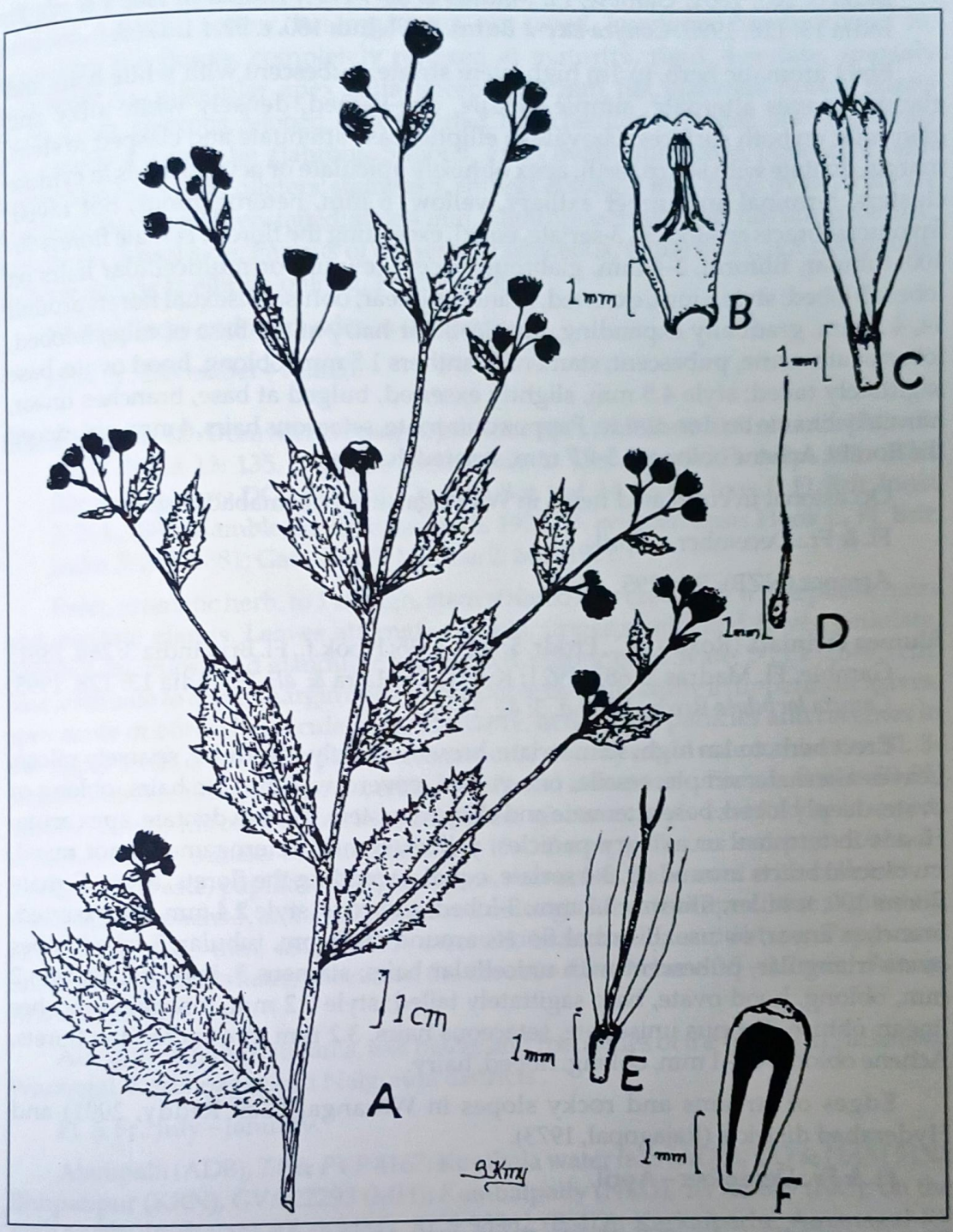

Figure 47: Blumea eriantha DC.
A. Twig, B. Corolla open, C. Floret, D. Pistil, E. Pistil & pappus, F. Ovary l.s.

Blumea lacera (Burm.f.) DC. in Wight Contrib. Bot. Ind. 14. 1834; Hook.f., Fl. Brit. India 3: 263. 1881; Gamble, Fl. Madras 2: 687. 1921; Kumar in Hajra & *al.*, Fl. India 13: 128. 1995. *Conyza lacera* Burm. f., Fl. Ind. 180. t. 59. f.1. 1768.

Erect aromatic herb, to 1m high, stem striate, pubescent with white hairs and glands. Leaves alternate, simple, sessile, one-veined, densely white silky and glandular on both surfaces, obovate to elliptic, base attenuate and clasped to stem, margin dentate with sharp teeth, apex obtusely apiculate or acute. Heads in cymose clusters, terminal and upper axillary, yellow, 6 mm, heterogamous, not rayed. Involucral bracts around 50, 3-seriate, equal, exceeding the florets. Female florets 90-100, tubular, filiform, 3-4 mm, glabrous, except few uni or multicellular hairs on lobes, 3-lobed; style 5 mm, exserted, branches linear, obtuse. Bisexual florets around 14, 4.5 mm, gradually expanding, multicellular hairy at the base of tube; 5-lobed, lobes ovate, acute, pubescent; stamens 5, anthers 1.5 mm, oblong, hood ovate, base sagittately tailed; style 4.5 mm, slightly exserted, bulged at base, branches linear, minutely hirsute on dorsal side. Pappus uniseriate, setaceous hairs, 4 mm, not exceed the florets. Achene oblong, 0.5-0.7 mm, striated, hairy.

Occasional in cultivated fields in Warangal and Nizamabad districts.

Fl. & Fr.: December – April.

Armoor (NZB), *BR* 7295.

Blumea laciniata (Roxb.) DC., Prodr. 5: 436. 1836; Hook.f., Fl. Brit. India 3: 264. 1881; Gamble, Fl. Madras 2: 688. 1921; Kumar in Hajra & *al.*, Fl. India 13: 128. 1995. *Conyza laciniata* Roxb., Fl. Ind. 3: 42. 1832.

Erect herb, to 1m high, stem striate, brown, densely glandular, sparsely pilose. Leaves alternate, simple, sessile, one-veined, coverd with hirsute hairs, oblong or ovate, deeply lobed, base attenuate and clasped to stem, margin dentate, apex acute. Heads in terminal or axillary panicles, yellow, 6 mm, heterogamous, not rayed. Involucral bracts around 60, 3-4 seriate, equal, exceeding the florets, acute. Female florets 100, tubular, filiform, 3.2 mm, 3-lobed, glabrous, style 2.4 mm, not exserted, branches linear, obtuse. Bisexual florets around 18, 4 mm, tubular, 5-lobed, lobes ovate-triangular, pubescent with unicellular hairs; stamens 5, inserted, anthers 2 mm, oblong, hood ovate, base sagittately tailed; style 2.2 mm, inserted, branches linear, obtuse. Pappus uniseriate, setaceous hairs, 3.2 mm, not exceed the florets. Achene oblong, 0.8-1 mm, oblong, ribbed, hairy.

Edges of streams and rocky slopes in Warangal (C.S. Reddy, 2001) and Hyderabad districts (Rajagopal, 1973).

Fl. & Fr.: December – April.

Blumea membranacea DC., Prodr. 5: 440. 1936; Hook.f., Fl. Brit. India 3: 265. 1881. var. **membranacea**; R. R. Rao & *al.*, Fl. Ind. Enum.-Ast. 17. 1988; Kumar in Hajra & *al.*, Fl. India 13: 135. 1995.

Erect, aromatic herb, up to 100 cm high, stem striated, sparsely pubescent with soft spreading hairs and glands. Leaves alternate, simple, sessile, one-veined, sparsely

velutinous on both surfaces, elliptic-oblanceolate, 1.5-11 × 0.6-3.5 cm, base attenuate, margin dentate, apex acute to short acuminte. Heads in terminal or axillary, lax panicles, 5-6 mm, yellow, heterogamous, not rayed. Involucral bracts around 50, exceeding the florets, completely reflexed at maturity, rigid, 4-seriate, sparsely pubescent and glandular, apex acute. Receptacle 2 mm, flat, glabrous. Female florets 50-80, 4 mm, glabrous, 3-lobed; style exserted, branches linear, obtuse. Bisexual florets 3-5; corolla 4 mm, tube glabrous, 5-lobed, lobes ovate, sub-acute, pubescent with unicellular hairs and colleters; stamens 5, anthers oblong, 2 mm, hood ovate, truncate to obtuse, base sagittately tailed; style 4 mm, slightly exserted, branches linear, obtuse, hirsute on dorsal side. Pappus of uniseriate, setaceous, white hairs, not deciduous. Achene oblong to elliptic-oblong, 1 mm, ribbed.

Waste places and road sides in the forests.

Fl. & Fr.: December – March.

Blumea mollis (D. Don) Merr., Philipp. Jour. Sci. (Bot.) 5: 395. 1910; Kumar in Hajra & *al.*, Fl. India 13: 135. 1995 . *Erigeron molle* D. Don, Prodr. Fl. Nep. 172. 1825. *Blumea wightiana* DC. in Wight, Contrib. Bot. Ind. 14. 1834; Hook.f., Fl. Brit. India 3: 261. 1881; Gamble, Fl. Madras 2:686. 1921. *B. neilgherriensis* Hook.f., Fl. Brit. India 3: 262. 1881; Gamble, Fl. Madras 2: 686. 1921.

Erect, aromatic herb, to 1 m high, stem striated, covered with white pilose hairs and stipitate glands. Leaves alternate, simple, upper sessile and lower petiolate, petiole 2 cm, pilose and glandular, one-veined, elliptic or obovate, 2-11 × 0.6-4.5 cm, base attenuate to acute, margin dentate or double dentate, entire in uppermost leaves, apex acute or obtusely apiculate. Heads many, in terminal panicles and racemes in the upper axils, 5 mm, purple, heterogamous, not rayed. Involucral bracts 50, 3-seriate, not exceeding the florets, entirely reflexed at maturity. Female florets 50-85, tubular, 3 mm, filiform, colourless, 2-3-lobed, glabrous; style exserted or inserted, branches linear, obtuse. Bisexual florets 4-15, 3.5 mm, glabrous except in lobes, 5-lobed, lobes ovate, papillate along margins, sub-acute, pubescent with colleters on dorsal side; stamens 5, anthers 2 mm, hood oblong, truncate at apex, base sagittately tailed; style 3-3.5 mm, usually not exserted, branches linear, obtuse. Pappus of uniseriate, setaceous hairs, not exceed the florets, white. Achene 0.5 – 0.7 mm, oblong, striated, hairy.

Along the edges of streams, wet places and road sides of the forests in Adilabad, Warangal, Karimnagar and Nalgonda districts .

Fl. & Fr.: July – January.

Alampalli (ADB), *TP & PVP* 4167; Kunthala water falls (ADB), *GO & DAM* 5130; Bhupatipur (KRN), *GVS* 22293 (MH); Kambalpally (NLG), *BVRS* 609 (NU); on the way to Bhadrachalam RF (KMM), *RCS* 98962 (BSID); Karkalpadu, Amanagal RF (MBNR), *SRS* 104552 (BSID); Pakhal (WGL), *RKP* 108266 (BSID).

Blumea obliqua (L.) Druce, in Rep. Bot. Exch. Club. Brit. Isles 4: 609. 1916. var. **obliqua** Randeria, Blumea 10: 286. 1960. *Erigeron obliqum* L., Mant. 2: 573. 1771. *Blumea amplectens* DC. in Wight, Contrib. Bot. Ind. 13. 1834; Hook.f., Fl. Brit. India

3: 260. 1881; Gamble, Fl. Madras 2: 686. 1921; Kumar in Hajra & *al.*, Fl. India 13: 137. 1995.

Erect herb, to 40 cm high, stem striated, covered with pilose hairs and colleters. Leaves simple, alternate, one-veined, pubescent on both surfaces, ovate-oblong, 2-8 × 0.5-2.5 cm, base semiamplexicaul to auriculate, apex acute. Heads terminal, solitary or two, pinkish, 5 mm, heterogamous, not rayed. Involucral bracts around 90, 3-seriate, equal to the florets, pubescent, tip acute. Receptacle 3 mm, slightly convex, areolate, glabrous. Female florets 350-400, 4.5 mm, glabrous, 3-lobed; style slightly exserted, branches linear, obtuse. Bisexual florets around 40, 5 mm, gradually expanding, glabrous on tube, 5-lobed, lobes ovate, triangular, sub-acute, multicellular hairs on lobes; stamens 5, anthers oblong, 2.5 mm, hood obtuse, base sagittately tailed; style 5.5 mm, slightly exserted, branches obtuse at apex, papillate on dorsal side. Pappus of uniseriate, setaceous, white hairs, 4-5 mm, equaling the florets. Achene oblong, 0.5 mm, hairy.

Usually near wet fields in Adilabad, Nizamabad, Warangal, Medak and Mahabubnagar districts

Fl. & Fr.: October – February.

Sone (ADB), *TP & PVP* 4062; Mallipet (NZB), *BR & CPR* 9237; Poosanpalle (MDK), *CP* 11958; Gangapur (MDK), *TP & CP* 11958; Edigonipally (MBNR), *MV & BR* 40704; Khammam hills (KMM), *RR* 113807; Gangaram (WGL), *RKP* 110949 (BSID).

Blumea oxyodonta DC. in Wight, Contrib. Bot. Ind. 15. 1834; Hook.f., Fl. Brit. India 3: 266. 1861; Gamble, Fl. Madras 2: 686. 1921; Kumar in Hajra & *al.*, Fl. India 13: 139. 1995.

Diffuse herb, to 30 cm, stems many from base, spreading, procumbent or ascending, villous with white long glandular hairs. Leaves radical and clustered at the base, densely silky white and glandular hairs on both surfaces, basal leaves obovate, 5 ×× 1.5 cm, base attenuate; upper ones elliptic, base rounded, 1 × 0.5 cm, margin spinous dentate, apex acute. Heads terminal and axillary, to 6 cm, heterogamous, not rayed. Involucral bracts 36, 3-seriate, slightly exceeding the florets, completely reflexed at maturity, green or violet brown, villous on both surfaces, acute or acuminate. Receptacle 2 mm, flat, alveolate, glabrous. Female florets 80, filiform, 3.2 mm, tubular, glabrous on tube, 3-lobed, lobe sub-acute, papillate along the margins; style exserted, to 0.5 mm, branches linear, obtuse. Bisexual florets 20, 4 mm, tube and limb 3.2 mm, gradually expanding from base, glabrous, tube 5-lobed, lobes ovate, 0.5 mm, sub-acute, papillate along the margins on ventral side; stamens 5, anthers abortive or not developed, hood obtuse, base fused with connectives, auricles not distinct; style 3.2 mm, exserted, to 0.5 mm, papillate above the middle, branches linear, obtuse, minutely hirsute on dorsal side. Pappus of very deciduous, setaceous, white hairs, exceeding the florets. Achene oblong, 0.8-1 mm, pubescent.

Near streams in Adilabad, Warangal, Medak and Hyderabad districts.

Fl. & Fr.: February – June.

Pochera (ADB), *CPR* 13229; Erloo to Koilkonda (MBNR), *SRS* 104513 (BSID); Hamsanpally RF (MDK), *RG* 116428 (BSID).

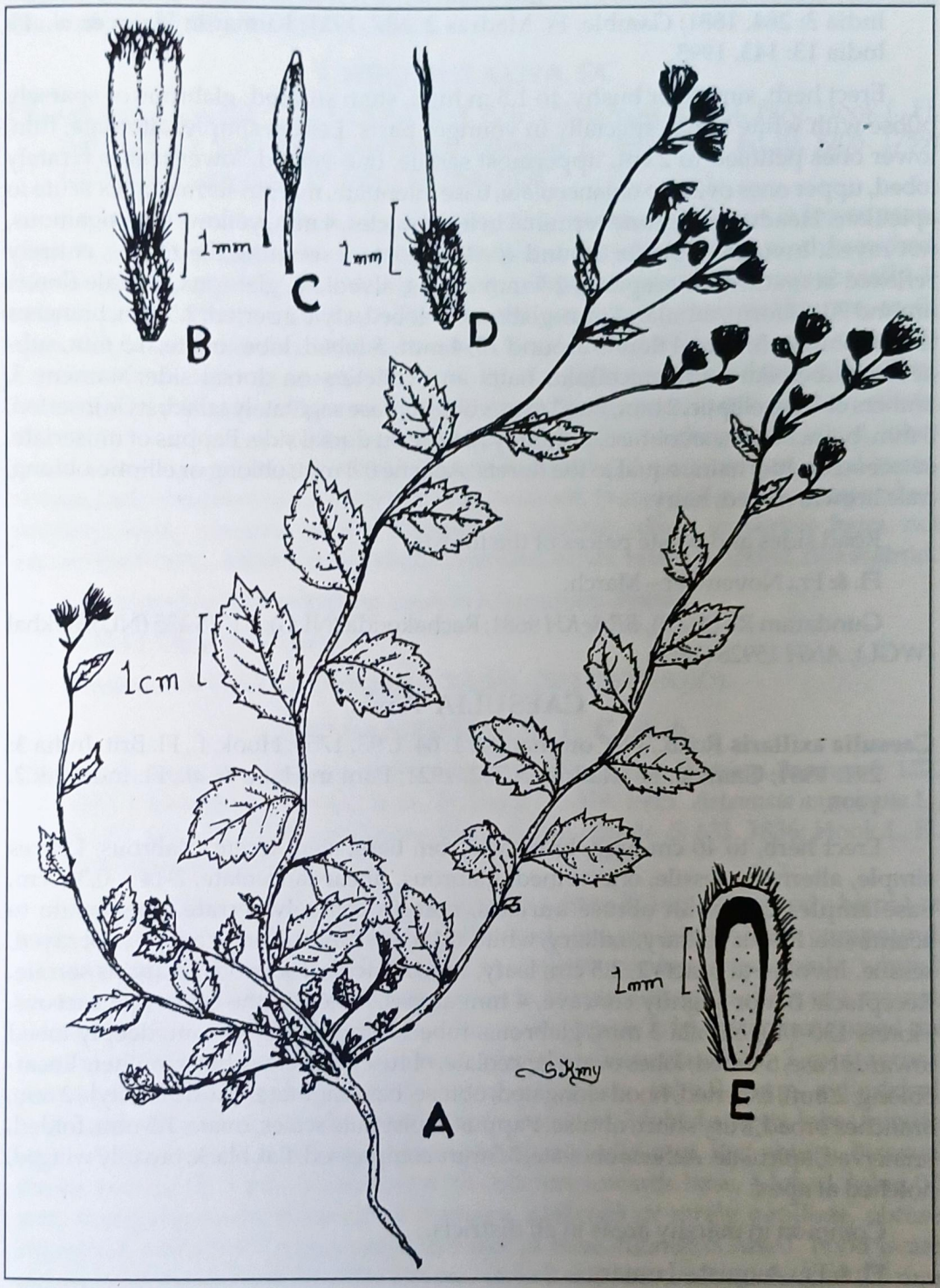

Figure 48: Blumea oxyodonta DC.
A. Twig, B. Floret, C. Pistil, D. Stamen, E. Ovary l.s.

Blumea virens Wall. ex DC. in Wight Contrib. Bot. Ind. 14. 1834; Hook.f., Fl. Brit. India 3: 264. 1881; Gamble, Fl. Madras 2: 687. 1921; Kumar in Hajra & *al.*, Fl. India 13: 143. 1995.

Erect herb, simple or bushy, to 1.5 m high, stem striated, glabrous or sparsely pilose-with white hairs especially in younger parts. Leaves simple, alternate, thin, lower ones petioled to 2 cm, uppermost sessile, one-veined, lower leaves lyrately lobed, upper ones ovate to oblanceolate, base attenuate, margin serrate, apex acute to apiculate. Heads axillary and terminal in lax panicles, 4 mm, yellow, heterogamous, not rayed. Involucral bracts around 40, 4-5-seriate, exceeding the florets, entirely reflexed at maturity. Receptacle 2.5 mm across, alveolate, glabrous. Female florets around 70, filiform, tubular, 4 mm, glabrous, 3-lobed; style inserted, 2.5 mm, branches linear, obtuse. Bisexual florets around 10, 4 mm, 5-lobed, lobes ovate, 0.5 mm, sub-acute, pubescent with unicellular hairs and colleters on dorsal side; stamens 5, anthers oblong-elliptic, 2 mm, hood ovate, obtuse, base sagittately tailed; style inserted, 3 mm, branches linear, obtuse, minutely hirsute on dorsal side. Pappus of uniseriate, setaceous, white hairs, equal to the florets. Achene 0.8 mm, oblong or elliptic-oblong, pale brown, ribbed, hairy.

Road sides and waste palces of the forests.

Fl. & Fr.: November – March.

Gundaram RF (NZB), *BR & KH* 9681; Rachakonda (NLG), *BVRS* 435 (NU); Pakhal (WGL), *ANH* 15928 (MH).

CAESULIA Roxb.

Caesulia axillaris Roxb., Pl. Coromandel 1: 64. t. 93. 1759; Hook. f., Fl. Brit. India 3: 291. 1881; Gamble, Fl. Madras 2: 702. 1921; Pant in Hajra & *al.*, Fl. India 13: 2. 1995.

Erect herb, to 40 cm high, branches from base, stem terete, glabrous. Leaves simple, alternate, sessile, one-veined, glabrous, linear-lanceolate, 2-14 × 0.3-1 cm, base amplexicaul with obtuse auricles, margin coarsely serrate, apex acute to acuminate. Heads solitary, axillary, white, 0.1-1 × 1-1.5 cm, homogamous, not rayed, sessile. Involucral bracts 2, 2.5 cm, leafy, base auricular, scarious, margins serrate. Receptacle flat or slightly concave, 4 mm across, naked in the centre, paleaceous. Florets 130-140, corolla 3 mm, glabrous, tube 1.2 mm, limb 1.8 mm, deeply lobed towards base, 5-lobed, lobes ovate-lanceolate, obtuse; stamens 5, black, anthers linear-oblong, 2 mm, exserted, hood elongated, obtuse, base sagittately auricled; style 2 mm, branches broad, very short, obtuse. Pappus of biseriate scales, ovate, 1.5 mm, folded, uninerved, apiculate. Achene obovate, 3.5 mm, compressed, flat, black, broadly winged, notched at apex.

Common in marshy areas in all districts.

Fl. & Fr.: August – January.

Sone (ADB), *TP & PVP* 4018; Kadthala (ADB), *GO & DAM* 5011; Kammarpally (NZB), *TP & BR* 6237; Gandhari RF (NZB), *BR & CP* 7243; Poosanpalle (MDK), *TP & CP* 11952; Mohammadabad RF (RR), *MSM* 10493; Kodimial (KRN), *GVS* 21844 (MH);

florets, uniseriate in bisexual florets. Achenes to 1 mm, glabrous in ray florets, hairy and striated in bisexual florets.

In open places and edges of the forests in most districts.

Fl. & Fr.: September – December.

Sone (ADB), *TP* & *PVP* 4037; Vempalli RF (ADB), *GO* 4438; Nasarullabad RF (NZB), *TP* & *BR* 6157; Narsapur RF (MDK), *RG* 113470 (BSID); Pakhal (WGL), *KMS* 11532 (MH); Kodimial (KRN), *GVS* 21874 (MH); Sathiyampet to Penugadappa (KMM), *RR* 112647 (BSID); Nilgiri view poit (MBNR), *SRS* 109714 (BSID).

PLUCHEA Cass.

Pluchea tomentosa DC. in Wight, Contrib. Bot. Ind. 16. 1834; Hook.f., Fl. Brit. India 3: 272. 1881; Gamble, Fl. Madras 2: 689. 1921; Kumar in Hajra & *al.*, Fl. India 13: 155. 1995.

Erect, woody sub-shrub, 1.2 m high, stems striated, puberulous. Leaves simple, alternate, sessile, whitish tomentose below, glandular, elliptic or ovate-elliptic, 1.5-3.5 × 1-2.5 cm, base auricled, margin serrate, apex acute to apiculate. Heads in compound corymbs, terminal and axillary, 6 mm, heterogamous, not rayed. Involucral bracts multiseriate, pinkish tinged, rigid, sparsely glandular, ovate, acute. Receptacle 2.5 mm across, slightly convex, fimbriate. Female florets filiform, tubular, glabrous, 3-lobed, exserted or inserted. Bisexual florets glabrous, 5-lobed; stamens 5, anthers 2.5 mm, exserted, hood ovate, base sagittate. Pappus hairy, uniseriate, dry white, equal to those of bisexual florets, longer than the female florets. Achenes oblong, ribbed, hairy.

Rare in the stream banks of the forests in Ranga Reddi district

Fl. & Fr.: October – January.

Lingampalle (RR), *MSM* 12743.

PULICARIA Gaertn.

1. Outer involucral bracts slender, linear-lanceolate ..... **P. foliolosa**
1. Outer involucral bracts herbaceous, spathulate, obovate or linear-oblong:
   2. Herbs diffuse to erect, to 30 cm high, peduncle not thickened below the head ..... **P. angustifolia**
   2. Herbs erect, 50-60 cm high, peduncle thickened below the head ..... **P. wightiana**

Pulicaria angustifolia DC., Prodr. 5. 479. 1836; Hook.f., Fl. Brit. India 3: 299. 1881; Gamble, Fl. Madras 2: 702. 1921; Kumar in Hajra & *al.*, Fl. India 13: 33. 1995.

Diffuse erect herb, 15-30 cm high, stems terete, puberulous. Leaves simple, alternate, sessile, puberulous on both surfaces, oblanceolate, subspathulate or oblong, 1-2.5 × 0.3-0.8 cm, base obtuse, margin serrate, apex acute. Heads solitary, terminal, yellow, heterogamous, rayed. Involucral bracts 3-4-seriate, equal in height, outer

Gaarlapaadu RF (MBNR), *SRS* 109095; Pakhal (WGL), *KMS* 11571 (MH); Kazipet (WGL), *RKP* 105210 (BSID); Kodimial (KRN), *GVS* 20117 (MH); Vankeswaram, Amrabad (NGKL), *BSS & BK* 2476; Devunisari, Mannanur (NGKL), *BSS* 3339.

LAGGERA C. H. Schultz. Bip. ex K.H.E. Koch

1. Stem winged ..... **L. alata**
1. Stem not winged ..... **L. aurita**

Laggera alata (D.Don) Sch.-Bip. ex Oliver, Trans. Linn. Soc. 29: 95. 1973; Hook. f., Fl. Brit. India 3: 271. 1881; Gamble, Fl. Madras 2: 689. 1921; Kumar in Hajra & *al.*, Fl. India 13: 148. 1995. *Erigeron alatum* D.Don, Prodr. Fl. Nepal 171. 1825.

Erect herb, up to 1 m high, stem striated, puberulous, winged, wings entire. Leaves simple, alternate, sessile, glandular and puberulous, elliptic to oblanceolate, 2.5-10 × 0.5-3 cm, base decurrent on to stem, margin denticulate, apex acute. Heads solitary, terminal or axillary, racemosely arranged on flowering stem, purple, heterogamous, not rayed. Involucral bracts multiseriate, foliaceous, glandular hairy. Receptacle slightly concave, glabrous. Female florets around 300, corolla tubular, 4 mm, glabrous, 3-lobed. Bisexual florets 14-15, corolla 5 mm, glabrous, 5-lobed; stamens 5, not exserted, anthers linear, hood ovate, base sagittate. Pappus 10-18, slender, setose hairs, uniseriate, free, whitish. Achenes oblong, 1 mm, ribbed, hairy.

Occasional on hill slopes in Nagarkurnool district.

Fl. & Fr.: November – February.

Pullaechelma, Farahabad (NGKL), *SRS* 109159 (BSID).

Laggera aurita (L.f.) Benth. ex C.B. Clarke, Compos. Ind. 92. 1876; Hook.f., Fl. Brit. India 3: 271. 1881; Gamble, Fl. Madras 2: 689. 1921; Kumar in Hajra & *al.*, Fl. India 13: 150. 1995. *Conyza aurita* L.f., Suppl. 367. 1781.

Erect aromatic herb, up to 80 cm high, stem striated, solid, pubescent with villous hairs. Leaves simple, alternate, sessile, villous on both sides, elliptic-oblanceolate, 1.5-8 × 1-2.5 cm, base auriculate and decurrent with 2-3 linear lobes on each side, margin dentate, apex acute. Heads 3-8, in corymbs, terminal on shoot and axillary branches, pinkish tinged, heterogamous, not rayed. Involucral bracts multiseriate, unequal, lanceolate, pubescent, acuminate. Receptacle flat, slightly concave, glabrous. Female florets glabrous, 3-lobed. Bisexual florets cylindrical, 5-lobed, pubescent; stamens 5, anthers 2 mm, hood ovate, base sagittate. Pappus uniseriate, slender, setose hairs, deciduous. Achenes oblong, 1 mm, brown, strongly ribbed, hairy throughout.

In waste places of the forests in Adilabad, Nalgonda, Hyderabad, Karimnagar, Nagarkurnool and Mahabubnagar districts.

Fl. & Fr.: September – February.

Sone (ADB), *TP & PVP* 4062; Nirmal (ADB), *CPR* 13236; Molachintapally (NGKL), *TDCK* 15307; Gaarlapaadu RF (MBNR), *SRS* 109094; Krishna river bank (NLG), *KMS* 9809 (MH); Aklaspur (KRN), *GVS* 22524 (MH).

LAUNAEA Cass.

1. Leaves with white cartilaginous teeth ..... **L. procumbens**
1. Leaves without cartilaginous teeth..... **L. sarmentosa**

Launaea procumbens (Roxb.) Ramayya & Rajagopal, Kew Bull. 23: 465. 1969; Mamgain & R.R. Rao in Hajra & *al.*, Fl. India 12: 309. 1995. *Prenanthes procumbens* Roxb., Fl. Ind. 3: 404. 1824. *Launaea nudicaulis* auct. non. (L.) Hook.f. sensu stricto. Hook.f., Fl. Brit. India 3: 416. 1881; Gamble, Fl. Madras 2: 733. 1921.

Rhizomatous herb, much branched from base, stem terete, glabrous. Leaves in rosette at base and cauline, cauline ones alternate, sessile, glabrous, oblanceolate-oblong, lyrately lobed or pinnatifid, 3-12 × 1-3.5 cm, base obtuse or attenuate, margin cartilaginous denticulate, apex acute. Heads many, clustered at nodes, yellow, homogamous, rayed. Involucral bracts 18, triseriate, ovate-elliptic, glabrous. Receptacle glabrous, 1.5 mm across. Florets 20, corolla 13 mm, tube 5 mm, tubular, glabrous below, sparsely hairy above, ray oblong, 5-lobed; stamens 5, anthers linear, hood ovate, base sagittate. Achenes pale yellow, polymorphous, 2.5-4 mm long; outer slightly curved, truncate at base; inner columnar, very thickly ribbed, truncate at both ends, smooth or obtusely rugose, much shorter than pappus. Pappus copious, white, slender, silky, forming a ring at base.

In sandy areas and waste places of the forests in Adilabad, Nizamabad, Medak, Karimnagar and Mahabubnagar districts.

Fl. & Fr.: January – October.

Darigv (ADB), *GO* 4576 (MH); Kadam dam (ADB), *GO & BR* 9414; Aklaspur (KRN), *GVS* 22534 (MH); Rudroor (NZB), *BR & KH* 9637; Pochammaralu (MDK), *BR & CP* 11486; Gaarlapaadu RF (MBNR), *SRS* 109099.

Launaea sarmentosa (Willd.) Sch. Bipp. ex Kuntze, Revis. Gen. Pl. 1: 350. 1891; Mamgain & R.R. Rao in Hajra & *al.*, Fl. India 12: 310. 1995. *Prenanthes sarmentosa* Willd., Phytographia 10.t. 6.f.2. 1794 & Sp. Pl. 3: 1540. 1803. *Launaea pinnatifida* Cass. Ann. Sci. Nat. (Paris), 23: 85. 1831; Hook.f., Fl. Brit. India 3: 416. 1881; Gamble, Fl. Madras 2: 833. 1921.

Prostrate herb, to 40 cm long, rooting at every node. Leaves spathulate, 1.5-6.5 × 0.5-2 cm, base cuneate-attenuate, margin denticulate or lobed, apex obtusely apiculate or acute. Heads solitary at nodes, yellow, homogamous. Achenes oblong, obtusely 4-gonous.